CHAPTER 2

The concept of sustainable development from an ecosystem perspective: history, evolution, and epistemology

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Abstract

In recent years, the sustainable development notion has faced the need to be redefined and revised. Modern societies have used the concept quite ambiguously and often confused it with ideas of growth, progress, maturity, evolution or wealth. The study of development in any of its dimensions involves entering into definitions that are so varied, so indistinct and in occasions so contradictory, that turns the practice itself, in no easy assignment to accomplish. In the 1970s, the book *Limits of Growth* used a wide and different approach of the world, the concept of limits not only for waste and emissions but also in the use of natural resources; its most significant conclusions were as follows. (1) If actual trends continue and consumption of natural resources is maintained as it is, the limits of the planet will arrive in the next hundred years. (2) It is possible to change these trends, in order to have access to opportunities to satisfy the capabilities to develop the potential on a human scale. During the Earth Summit in Río de Janeiro, the Environmental Commission from the UN led an effort to recognize and share responsibilities to change the negative impacts of the trends on natural resources. The president of the Commission, Brundland, wrote a significant document that shows a pragmatic concept, sustainable development. This chapter discusses the relation on the genesis of the sustainable development concept, the relation with the economics and its non-reflected impacts and, finally a human scales approach about values, interests and epistemology used on the concept to provide a wide vision on the ecosystem perspective.
Keywords: Ecosystem, epistemology, human development, sustainability.

1 The concept at the beginning: environmental sciences?

We are a part of the Earth, we do not possess it; it might be a very synthetic way of summarizing what Noah Seattle wrote to the President of the United States of America in 1855; this is one of so many approximations that give sense to characterize what humans forget constantly, that we are a species of the planet and that nevertheless we have transformed it irreversibly for many centuries.

In Rio de Janeiro, Brazil in 1992 within the Conference of Environment and Development supported by the United Nations a number of principles were characterized that help to conceive the idea of sustainable development (SD). Principle III says: ''The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.'' Likewise principle IV affirms: "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it."; this principle is included inside the program of Agenda 21 of the UN.

The World Commission of Sustainable Development (WCSD) and other authors Spangenberg [2] and Bossel [3] established with clarity an approximation toward the SD from a vision of dimensions or systems; they tried to show a way of the sustainability bringing it near and being understood and in addition both coincide in leaning toward the idea of a model where relation links appear between each of the dimensions or systems.

Schumacher's [4] *Small Is Beautiful: Economics as if People Mattered*, leaves in evidence that the way of modern life provokes a rapid decrease in the stocks of natural resources and the destruction of the nature, which the economic system has trumped at the moment of incorporating intangibles, and probably the major contribution – the idea of that the technology plays a more decisive paper in the human scale.

In 1972 at Stockholm during the Conference of United Nations on Human Environment, the importance of the management and use of the environmental evaluation as a management tool were recognized, though still one does not see a clear league between development and environment, agreed that it is the first step towards the SD as concept.

Probably those which were coming closer to linking development and environment with major clarity were the World Wildlife Fund, the International Union for the Conservation of Nature and the United Nations Environment Program, when they published the *Strategy of World Conservation* in 1980, which tried to place it under the prism called conservation, development and environment.

In the different approaches about sustainability, 'visions' let's say extended, of the phenomenon man – development – nature, there arose certain aspects that were escaping the conventional analyses. In proposing a strategy to conceptualize the sustainability, it is necessary to bear in mind that spheres, which traditionally have been understood in a separate way, must be joined, and that this point of meeting is the SD, economy, society, and ecology.

2 Society, economy, and ecology: three different worlds with a common approach

When it comes to describing SD principles that have been implemented currently, we face the difficulty of finding boundaries in definitions and approaches that delimit sciences from which they have been originally equally done. So far, economic and ecological areas from science have intervene the most in the debate and discussion, and among them different ways to understand the phenomenon can be recognized, although their approaches have elements of both sciences immersed in their language and new social, cultural and political focusing that complement it.

2.1 Economic approach

By the post-war era, the first approach of economy in terms of sustainability stated as their main concern the ensuring of employment levels along with labor and productive resources, so the income needed was ensured to maintain effective demand through a steady and sustained process of investments: 'It is explicit the need of a sustained process which performs both from the demand side and the supply side: to ensure income levels and effective demand through the full use of productive factors in a process of long-term structural transformation' [5].

In the 1970s, with the environmental problems presented during that era, this economical approach was revalued because it did not take into consideration the ecological base that sustains materials production needed for maintaining life. This scenario lead to the emergence of Malthusian ideology of population growth control, and zero growth was raised.

A school of thought emerged that gathered all these existential concerns characterized by the fear of human survival. Ecodevelopment, resulting from the concept of eco-system attempted to include the natural system into a sociocultural frame, and recognized diversity phenomenon that suggests multiple solutions to development issues.

> Eco-development states society organization based on the rational use of its ecosystems, which are valued by the adoption of adequate technologies to itself. Eco-development supposes to base development on each one's effort, the retake of traditional values, assuming decisional responsibility, that is, self-determination. To sum up, the strategy was to transform the current crisis through a swerve to another development or an alternative development [5].

A different trend brought up the integration of environmental dimensions to development strategies as a qualitative component of welfare, and a set of resources or potentialities to use in order to accelerate development and increase welfare. This trend recognized the economic growth objective and considered orientation and social control of generation, and science and technology application. In addition,

it highlighted interdependence of global systems whether they were social, economical, or natural.

> In this context, the rational management of natural system to guarantee survival as the base of social system is advocated. It is explicated the dynamic of the process and the necessity to overcome the contradiction between praxis governed by short-term against the long-term implications of economic decisions and activities, particularly when they involve the natural system [5].

Bifani analyzes the concept of SD from the environment perspective and its relationship with development, by saying that: 'if SD is the basis for progress and welfare and provides resources for achieving it, economic growth is the one which provides financial, scientific, technical and organizational means which allow the rational and efficient use of the environment and its preservation' [5].

This vision depends on the economical system that ignores the relevance of other systems involved in the process of development when magnifying the importance of economy.

Also, Bifani [5] describes the characteristics of SD related to the factors presented in the concept:

1. It refers to a constant changing process in which exploitation of natural resources, investment, and scientific-technological direction, along with institutional change allow making compatible the satisfaction of current and future social needs.
2. It recognizes the existence of limits and conflicts. Limits lay on social, economical, and technological, and on environment weaknesses; conflicts are inherent to any kind of change. The first can be overcome thanks to inventive and human capability; the latter can be managed in a rational way.

And he concludes by saying that: 'the concept SD goes beyond the dichotomy between environment and development, it recognizes planetary interdependencies, the necessity of making compatible short-term and long-term dimensions, emphasizing on the capability of social system to overcome limits and conflicts' [5].

2.2 Ecological approach

When referring specifically to each one of the aspects involved in SD, the constant will be biases in their interpretation.

As economic bias enhances the importance of this system inside complexity of SD, 'ecological bias' tends to reduce the concept to the mere ecological sustainability or economically SD, prioritizing ecological conditions needed for maintaining human life on earth.

This analysis has a clear reductionist nuance, unknowing or setting aside social and cultural aspects involved inside SD concept; moreover, it erroneously considers that dangerous conditions for stability of natural systems are the same all over the world, taking for granted the obvious differences between developed world and developing world in the frame of the analysis of environment

deterioration and its relationship with socio-cultural conditions which determine its exploitation [6].

In the ecological approach, there are two inflection points that characterize SD discourse; first, there is ecological limit topic, and therefore, the impossibility of economic growth in a finite planet. The other complementing topic to this approach is intergenerational responsibility through which natural resources must be preserved so that future generations have a maximum of opportunities while optimizing and maintaining their welfare.

Currently, when economical and ecological discourses are mixed up, one of the firsts that presented his theories is the Economist Herman Daly, who had stated, since the 1970s, that sustainability in earth life would be possible only from zero demographic growth and zero economic growth, the steady-state could reach an optimal development for maintaining life. This theory is based on finite limits of the global ecosystem to produce resources and accumulate waste, and the excessive pressure of economical system to provide resources and eliminate wastes [7].

Daly, according to his theory of zero growth, sets some operative criteria for SD which are widely known and used as a benchmark when it comes to relating economy and environment with sustainability [8]:

In terms of renewable resources management [8]:

1. Collection rate must be equal to regeneration rate (sustainable production);
2. Waste emission rate must be equal to the natural assimilation capability of ecosystems where waste is emitted.

   In terms of nonrenewable resources management:

3. Nonrenewable resources must be managed so that its rate of discharge is limited to the creation of renewable substitutes;
4. Other factors, such as technology or economy scale, also have to be in harmony with SD.

SD is a dynamic process, as such, it has two components: speed and direction. Economic practice emphasizes that growth tends to minimize the latter or subordinates it to the first. SD highlights the relevance of the process direction.

According to Daly, it is used to mention the first three operative criteria and it alludes to the rates or resources regeneration speed and waste elimination or purification. But more than speed, it is required to emphasize the processes direction, which economy does not engage and must be completed by social and human sciences to supply that fourth operative criterion Daly outlines which can define the whole process orientation.

Equally, Daly makes a critique to the concept of growth and its synonymy with economic growth, and the way in which SD discourse has focused on this vision:

A prolonged habit has made of the word growth, in the spirit of many people, a synonym of wealth increase. This people say we should have growth because only if we become richer it would be possible to face the cost of environment protection. All problems would be easier to solve if we were actually richer, that is for granted. What is not for granted is if growth, in the current

frame, is really making us richer. As physical dimensions of human economy push further than the optimum scale related to the biosphere, it makes us even poorer. Growth, as everything else, could cost more than it does in the margin. Growth, which we usually referred to as 'economic growth' while we were under the optimal scale, becomes an 'uneconomic growth' once such optimal scale has been exceeded [8].

In view of this uncertain environmental scenario inside the concept of SD, due to the tight relationship it has with economic growth, some ecologists have done efforts to conceptually divide economic growth from SD, starting from conceiving development as quality of life and not as a raise in consumed products. An important aspect of this ecological approach is the adoption in the analysis of certain concepts in social systems that belong to demographic biology carrying capacity, ecological footprint or shadow area and resilience.

Ecological SD has ignored another important aspect, its relationship with the concept of carrying capacity and resilience. These refer to the system capability to absorb crashes, support stress and overcome it, and incorporate experience from those tensions to benefit its own dynamic.

This concept is against absolute limits stated by ecological theories mentioned above, like Daly's. It is true that resources are finite but it cannot be affirmed with certainty where that limit is and it cannot be known because resource scarcity responds to a dynamic process influenced by multiple sociocultural factors, which do not respond to economic-environmental predictions.

A critical aspect involved in SD discourse is the distribution of wealth and waste. This fact ignores the existence of distributive aspects, reflected on two particular circumstances; first is the unequal access to pressure capacity over natural resources that lead to an unequal access to wealth. Human society cannot be evaluated the same as other animals in their pressure over resources because pressure is not exerted based on the number of individuals but on diverse sociocultural factors and individuals' characteristics.

Second, it is ignored that not all human beings have the same access level or benefit from the exploitation of natural resources; it is forgotten that there are societies which exploit and are beneficiary of natural resources that belong to others (i.e. ecological footprint) [6].

Therefore, ecological theories of SD have an implicit contradiction added to their approach of demographic control and zero growth. When these theories refer to redistribution of wealth, they do not know the existence of poverty as an obstacle for development.

To sum up, the main inconsistence of ecological approach of SD is that it focuses on ecosystem disturbances but ignores the reason of those interventions, the forms they adopt, and sociocultural and economic factors involved in the process.

3 Conceptual reflections on sustainability/SD

A first analysis of the sustainability concept has divided sustainability into *normative sustainability* and *positive sustainability*. The first refers to *what it should be*,

and the latter refers to *what it is*. In other words, the *positive sustainability* tells about scientific analysis of sustainability and SD, with the above-mentioned economic and ecological bias, and in which there is no agreement about what should be sustained. While *normative sustainability* is the one which is called official and refers to all agreements and proposals that emerged from the conceptual frame of SD that was originated in international meetings by the United Nations Organization from 1972 [6].

Owing to this fact, it has been considered that the need for talking of *integrated sustainability*, taking into account this way, can incorporate different visions which will give the discourse a great conceptual consistence as well as ecological, economic, and social aspects.

But this is not just a circumstantial fact that allows sustainability to extend its scope; more than that, it is an essential characteristic of sustainability which starts to become evident.

So far, polarization concept has been the one that made each interest group to focus their action to certain sectors. For that reason, we find different schools of thought which correspond to a particular way of understanding SD, and ignore other complementary aspects.

However, to Jiménez-Herrero [7], this characteristic is necessary to make sense of sustainability:

> Sustainability as concept has sense just when it is related to a specific reference system, according to certain objectives and efforts based on different principles, values and scales. For instance, sustainable cities, sustainable agriculture, regional SD or sustainable human development (HD) could be mentioned with reference to sectors, environments, or generally and/or partially specific spaces over time. Therefore the substantive core of sustainability or SD lies in the space-time dynamics [6].

We come to another important point of the schools of thought analysis: the difference between sustainability and SD.

Both concepts are way different from one another. While the first refers to its capability of maintaining steady in one state, the latter refers to a process, which is essentially integrator and looks forward to maintain itself in a state of dynamic long-term equilibrium. Hence, integrated sustainability can be the main idea of SD: the origin, space–time character, and contexts or reference systems integrated to the development process.

Therein lies the discrepancy between the two concepts; sustainability and SD are different in terms of the final objectives they pursue. Sustainability sets an argument that has no discussion and the ultimate goal pursued, whatever it is, should be combined with equilibrium in the use and erosion of natural resources. Thereupon, sustainable pursuit of ecological and environmental sustainability starts from the basis of natural resources conservation, that is to say, of objectives pursued by sustainability, and it is complemented with social, economic and cultural equilibrium pursuit, which is 'in theory' the object of discussion in the World Summit on Environment and Development of United Nations.

From this analysis, a new wider and complex vision of SD can be reached: 'A set of relationships among systems (social and natural), process dynamic (energy, matter and information) and value scale (ideas and ethics). As economic, ecological and social systems interact among them interdependently, their stability will depend on their capability to withstand fluctuations, maintain the overall integrity and guarantee their basic functions … [r]equired values to assign and distribute resources equally among human beings and other living species have to be supported by ideas which encourage Integral Sustainability. On the other hand, dynamic processes have to maintain certain characteristics such as equilibrium, speed, trajectory, intensity, and so on. Such characteristics are defined as vectors affected by a set of endogenous and exogenous variables relative to physical, economical, social and political conditions which attempt to be sustainable over time, according to different space and time contexts' [7].

The relevance of conceiving nature as environment in sustainability and SD discourse is reflected in one of their main theoretical axis, natural capital, which along with artificial capital (the one created by humans) and human capital (humans and their knowledge) make up the total capital. In other words, an economical value is added to everything that exists on earth, with the aim of calculating available resources viability to be consumed by men in space and time. If we take a look at the definition of what natural capital is, we will understand what this new nature comprehension means: 'created by nature as stock that provides flow of goods and useful services to the present and the future (supporting life systems, biodiversity, forests, species, natural resources, water sources-sinks)' [7]. In this discourse it is required to know what value nature goods have. These goods are understood as available and usable resources in order to have a referent when it comes to calculating the effects of environmental degradation on economy.

As a consequence of the emergence of environmental awareness in sustainability discourse, there have been two schools of thought that attempted to establish which strategy would be ideal to face natural resources degradation and its effects on 'human beings life': weak and strong sustainability.

Weak sustainability is based on the primacy of a sustainability economical approach and looks for raising or keeping a rent level enough to guarantee wealth or per capita consumption. It establishes that there is a perfect substitutability among different capital forms, so total capital remains constant and to maintain wealth reached so far. Nature transformed into environment is just consumption material and as it produces a valuable economic benefit it would be taken into account when considering its preservation; in addition, it clarifies that its substitution would be feasible.

On the other hand, strong sustainability or non-substitutability is based on an economic principle. It establishes that there is an impossibility of replacing natural resources because they belong to complex natural systems and the economic vision does not consider simplicity into its equation. It recognizes economic process entropy as it is an open system to environment with which it exchanges matter, energy, and information, including caution principle when considering uncertainty and irreversibility of ecological processes. Finally, *strong sustainability* establishes

that there is no perfect substitution among capital but they complement one another. There is also a very strong sustainability concept from which Daly and his station-ary state with level growth zero, is a clear example.

4 Sustainability as a new science

In scientific literature different approaches to a new science of sustainability are found as emerging field of knowledge with the premise to transcend the positivist analyses of classical sciences based in Cartesian view of reality [9]. This new sci-ence of sustainability is characterized to assume a systemic comprehension of con-temporary problems in their constitutive dimensions; social-cultural, ecological, economical, and political. These four dimensions are interrelated and define diverse situations, in which contemporary challenges for humanity are found [9, 10].

Different epistemological proposals that can be associated with sustainability sci-ence were reviewed by Ríos *et al*. [9]. and represent a new approach to subject – object relationship, focus on any kind of knowledge area that pretends to be named as science: Transactional epistemology [11], Reflexive epistemology [12], and Political epistemology [13] were a base to define an study object to sustainability, and a truth criteria defined by Gallopin [14] in his *Science and Technology, Sustainability and Sustainable Development.*

With these elements, sustainability science has great possibility to support a new kind of researchers, but need new theoretical and methodological models that show us how sustainability can make a difference in relation with classical sci-ences, but including classical sciences and its theoretical and methodological frameworks.

The positivist model is not erased from the epistemological reality of sustain-ability science. Instead, it is transcended in order to allow for a greater complexity and is included in the procedures of the new systemic models, from which a new way of understanding reality is posed [9].

Finally, for the character of sustainability as an emerging science, it can be argued that the epistemology for sustainability fits perfectly into the problematic character of the systemic, complex reality which allow the very emergence of SD. But, there is an urgent need for a profound discussion on a basic aspect, following the guidelines of a unique epistemological model, with a critical transdisciplinary character [9].

5 Sustainable HD: paradigms and origins

Manipulation of the concept has proscribed a global agenda for progress and evo-lution in new ways. In this regard, the need of addressing development in a more humanistic fashion gave birth to several schools of thought and other debates con-cerning people's role and participation as curtail issues in the process. Under-standing development in more holistic terms stressing human well-being became a popular view in the early 1980s. The concern grew stronger, focusing development

on the expansion of human choices and equality of opportunities, where people's empowerment will allow them to participate in the process.

The mere 'development' concept began to be contested in the 1970s when the world's inequality situation and income misdistribution became unsustainable. Attention was shifted to the poor as they complained about development not touching their ordinary lives and that economic growth had meant generally, very little social justice [15]. With this scenario, 'another development' needed to be projected. The General National Product (GNP), a macro-economic measure, was the only indicator of well-being in all countries that development-concerned organizations brought up to address the moral distress issue on *what?*, for *whom?*, and *how?* Development was to be meant.

The basic needs debate came subsequently in the following years as a school of thought which centered its analysis on the satisfaction of Basic Human Needs (BHN) in opposition to the traditional economic growth perception. Consequently, the International Labor Organization (ILO) championed, what could be called, a renewal of the development concept, when in 1976 their *Employment, Growth and Basic Needs Report* was first published [16].

The ILO declaration represents a defining moment in development history given the fact that it pointed that 'people and not countries, were central to the development process' [16]. The ILO's main thesis focused on the accelerated implementation of economic growth measures to overcome the tremendous poverty widespread and employment problems in developing countries. Yet, other proposals were also emerging from other institutions. The Dag Hammarskjöld Foundation Report, for instance also publicized in the 1970s advocated for the humanization of people and other basic aspects such as their creativity, conviviality, and for the right to decide their own destiny [17]. All in all and according to Sachs [18] 'what the concept lost in semantic precision, it gained in political versatility'.

Despite the Brundtland Report's query in 1987 [19], the economic paradigm was never really questioned. Yet *Our Common Future Report* alluded to the so-called humanization of development providing the so-called process with a human face.

6 Towards a 'development with a human face'

The mistaken thought of willing to develop everyone and everything under one single idea degenerated in a moral void where most basic needs where not satisfied, no real equal economic growth was taking place, environmental care was not in any sense imperative and justice and democracy were barely acknowledged. Quantitative measure to account for human progress became popular within new disciplines such as the emergence of the *humanistic economics* [20], the Measure of Economic Welfare (MEW) [21], the Physical Quality of Life Index (PQLI) [22], and the BHN Indicator [21] developed in the 1970s and 1980s, sometimes used by organizations like the United Nations Environmental Program (UNEP) only to mention a few.

The promotion of 'human good' – well living/well being – was captured and institutionalized when the HD paradigm that emerged by the end of the 1980s. However a first attempt to this was the Brand Report which emphasized on the often overlooked idea of greater human dignity, security, justice, and equity as equally valid measures of development and pointing on the need to envisage a world where essential changes required to be made; where every citizen of the world had enough for his/her need to provide social and economic equality for humanity [23].

In 1990, the first Human Development Report (HDR) was published. It represented breakthrough on the continuous thinking of development as economic growth shifting into a new paradigm cantered on human beings. A new phase in development history was yet to come with a new set of evaluative questions: How can economic growth be managed to be in the best interests of people? And what strategies or policies would be most appropriate to ensure that people and not 'commodities' be the focus of international interest? [24]. Ever since, the HD paradigm has become a conceptual framework in development theories and practice with the clear objective of being able to create an enabling environment for people to enjoy long and creative lives [24].

7 Human development: a new concept; easy to understand, yet difficult to undertake

The HD was then described as a basic process of development, where the primary objective was to enlarge peoples' choices to lead a long a healthy life, to be educated and to enjoy a descent standard of living [24].

Mahbub ul Haq, considered to be the 'father of the reports' [25] had a strong belief in designing a new development strategy in more operative ways. He insisted that 'Human lives can go very much better, and be much richer in terms of well-being and freedom, as the human agency can deliberately bring about a radical change' [26]. The HD concept was institutionalized and became accepted even in economics and development literature as 'the expansion of human capabilities, a widening of choices, an enhancement of freedoms and the fulfilment of human rights' [27]. The notion raised several questions that allow the global community to find a way of realizing that, effectively, if economic growth and human progress are in no way related, how can it be made possible for the two concepts to link and strengthen their interdependence? [24] Yet, the set of questions went further:

'Were people truly enjoying an expansion in their capabilities? Has there been a significant improvement in their quality of life? Do they have more of what they cherish? How free are they? And how equal?' [27]

The HD concept insist that people are not regarded as passive beneficiaries of services provided to meet basic needs, 'but instead people are seen as active agents of change' [27].

Originally the HD concept wanted to be a more practical approach and not merely a conceptual agreement between experts. This actually helped to have a rapid acceptance including its operational indicator which constituted one of the

central pillars of the approach: the Human Development Index (HDI). The HDI represents the backbone of the report and seen as an adjusted GDP that serves as an indicator to measure the progress of a country beyond traditional economic considerations and somehow replacing GDP. As Ul Haq [26] explained, the HDI came into sight as a new measure that is needed to draw more attention to issues of central concern of people without being blind to social aspects of human lives. Regarding the emergence of a new indicator aggregating three essential aspects of human life – life expectancy at birth, adult literacy rate, and a decent standard of living [24], a broad debate concerning the application and operationalization of this new index became relevant. But was this 'new comprehensive measure' really multidimensional? Was it culturally oriented? Does it truly capture the essential aspects of human life? How it establishes this yardstick? And under which social, political, cultural, and historical circumstances this applies? These were many of the central questions motivating academics to continue in the search for answers.

The HD concept has its philosophical roots based largely on many of the ideas written by the Nobel laureate Amartya Sen, and transcribed through his Capability Approach (CA). Defined as an approach, it provides an alternative tool to conceptualize and evaluate poverty, inequality, or well-being [28]. HD is concerned with what Sen [29] considers to be the basic development idea: advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it. Hence, development is understood as the process of expanding the real freedoms that people enjoy where development, progress, and the reduction of poverty occur as a result of people having freedom and expanded capabilities [29].

In brief, what this perspective intends to address, is that 'the ends of Well being (WB), justice and development should be conceptualized in terms of people's capabilities to function' [30]. Freedom plays an important role in the development process as it is both the end and the main instrument of development. Positive and negative freedoms are entailed in this reasoning (e.g. positive: freedom to achieve a type of life one values or negative: to avoid malnutrition) But moreover, Sen states that 'capabilities are expressions of freedom themselves' [31]. Their value rests primarily when functioning needs to be achieved (such as avoiding starvation, under-nourishment, escapable morbidity, and premature mortality) [29]. Summarizing the approach, according to Alkire [32] '"capability" refers to a person or group's freedom to promote or achieve valuable functioning'. In other words, capabilities are the *real opportunities* and the set of *choices* that individuals have to increase their WB and freedom.

Other authors like Nussbaum [33] have worked in developing alternative ideas to the CA. She defends that central capabilities could be held and valued as features of being instrumental and central for any life becomes some sort of central constitutional principles for well-being. Her capabilities approach and her evocative list of 'essential functional capabilities' [34] has been fairly appreciated due to its valuable political relevance: life; bodily health; bodily integrity; senses, imagination, thought; emotions; practical reason; affiliation – other species – play; control over one's environment [33].

8 'Other approaches' to HD: the humanist economics and the human-scale development approach

Alternatively to development approach adopted on the 1970s–1980s, the 'New Economics' movement gained relative importance as well. The '*What now?: Another Development Report*' [17] and *The Other Economic Summit* [35] where good examples of this efforts. The Humanist Economics school of thought was as well popular advocating at the time on issues of human welfare as a value-directed discipline following on psychological, sociological, historical, anthropological and positive economic analysis [20]. Humanistic economics were 'as much of economic philosophy as it was an economic science' [20] but also an open discipline and not a sort of 'exclusive club' [36] capable of 'interpreting and solving the pertinent problems affecting humanity as a whole' [36].

From this platform the Human-Scale Development (H-SD) notion appeared for the first time in an article published by the Dag Hammarskjöld Foundation (DHF) in 1986 [37] in line with Aristotle's conceptualization with the 'art of living well'. Within this paradigm it was suggested that the best development process will be the one that enables improvement in people's quality of life, allowing people and communities to be coherent within themselves [38]. The axis of this central thought is that H-SD concentrates on, and is sustained by the satisfaction of fundamental human needs and the generation of growing levels of self-reliance as well as by the construction of 'organic articulations of people with nature and technology, of global processes with local activity, of the personal with the social, of planning with autonomy, and of civil society with the State' [39].

> Stressing that development refers to people and not to objects, this approach entails a theory of human needs for development. For H-SD, fundamental human needs are the same in all cultures and historical periods, changing only in a very slow pace according to our evolution as specie [40]. 'Those proposed are at the axiological level (i.e. referring to those things we value): subsistence, protection, affection, understanding, participation, idleness, creation, identity and freedom. The need for transcendence is sometimes also included. The argument is that what changes over time and between cultures are not the needs, but rather the way in which they are or are not satisfied at the existential level (i.e. concerned with the meaning and purpose that relationships have for a person) according to different ways of being, having, doing and interacting, which is the second axis whereby needs are manifested and classified within this approach. In other words, what changes are what the theory identifies as satisfiers' [41].

In the search for a new type of development, Max-Neef claims that development should be based on what he calls an *integrated ecological humanism*:

> Ecological, based on the conviction that human beings – in order to realize themselves – must maintain a relationship of interdependence and not of competition with nature and the rest of mankind fostering analogies

for social order. But also humanistic, as ecological balance must be also subject to human knowledge, judgment and will in terms of conscious political action' [39].

Within the human-scale perception, the actualization of needs is not only a goal, but the motor of development itself. A need implies either deprivation and/or potential depending on the extent that needs engage (strongly or weak), the perception of unmet needs motivates and mobilizes people utterly becoming a resource. In other words, the lack of something might be motor to achieve the fulfillment of the need engaging the person as a key actor in the process. Therefore instead of being satisfied or met, 'needs are to be lived, achieved, or realized from the outset and throughout the entire process of development' [39]. For example, the need to participate is the potential for participation; the need for affection is the potential for affection, and so on [39]. What becomes utterly meaningful is the freedom of that person to define his or her satisfiers in order to realize his or her needs, in achieving a better life which that person and his or her community values [42]. Consequently, needs are never seen as passive instruments but the opposite. After all, people and societies vary in forms of *being, having, doing, and interacting* [36]. The satisfaction or not of needs will therefore depend on the right combination and articulation of specific satisfiers that people will relate too socially and/or individually [41].

The work developed by Max-Neef *et al*. has been extensively cited in development literature and the needs and satisfiers matrixes have become very popular in development practice. However, more recently new practical approaches have been elaborated building upon key aspects of the H-SD methodology that is used to evaluate SD policies scrutinized under human needs' analysis [43]. The incorporation of the dimensions proposed by the H-SD approach as distinctive aspects of people's lives where valuable information could be obtained about their characteristics as a society (*being*), the norms, tools, mechanism, and laws that could emerge from the application of a certain policy/strategy (*having*), the actions (collective and individual) that any strategy may motivate and inspire (*doing*), and also the importance of the settings and milieus (*interacting*) where everything takes place; represents an innovative framework to evaluate WB achievement and take account of all those significant aspects of peoples' values in the process.

As the H-SD depicts that the best development process must be one that enables improvement in people's quality of life allowing countries and cultures to be able to be self-coherent [38], evidence that this is utterly possible should be provided. In search of this coherence and demonstrating the relevance of conducting assessments through holistic human needs frameworks aiming to integrated sustainability, further methodological applications and adaptations of the original methodology have been developed to conduct multidimensional analyses [41–43].

9 Some final remarks

Diverse interpretations exist of what must be the sustainable and enclosed development of what must not be, nevertheless the number of debates in the matter

increases day after day, propitiating a dichotomy between his interpretation and the influence that should have in the politics towards a SD.

There is a background in the relationship currently established between environment and SD, which covers the relationship between men and nature. From the Middle Ages, with the emergence of positivist thought, from Bacon and Descartes, to the logical empiricist movement, after positivists and neo-positivists, and currently to constructivists, Westerners have supported their function in the world by and for dominating nature, and with religion as an ideological backup has exalted men to a privilege position with regard to other living creatures that are placed to men's service. That mechanistic-deterministic vision of life has ruled for several centuries and is the one taking Western men to contravene some limits which we did not consider but that we had the right to violate because of our 'rational' human condition. The nature dominance was the homework we had to do. Now is when disastrous evidence of nature subdue pursuit come to light based on the necessity of maintaining economic development level and life quality that part of humans (Western men) have reached. Again, Westerners play the spokesperson and suggest a new way to comprehend the relationship between humans and their environment, but the human specie is still slave of its anthropocentrism, not measuring consequences of what it does. It is about a new world, actually, it is about returning to nature, to be part of it again. Western thinking has to change the positivist idea of ruling the world, yet prevailing to a more subjective vision of the world positioning humans just as one of the species who inhabit it.

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